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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,735	01/22/2004	Ahmad Said Ghazal	11384	5623

7590 08/02/2006	**EXAMINER**
John D. Cowart	RAYYAN, SUSAN F
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ART UNIT	PAPER NUMBER
2167	

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DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _22 January 2006_.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-26_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-26_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-26 are pending.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

Claims 4-5,11-12, 16-17,23-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 4-5,16-17,23-24 recite determining if inserts and update that result in modification of the DCR are rare (or rarely concurrent with queries) is indefinite. It is unclear what would be considered rare or rarely concurrent.

Claims 11 recite determining that inserts and updates that result in modification of the DCR are frequent. It is unclear what would be considered frequent.

Claim 12 recite determining that inserts and updates that result in modification of the DCR are frequently concurrent with queries. It is unclear what would be considered frequently concurrent.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 6, 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by

US Patent Number 6,957,225 issued to Mohamed Zait et al ("Zait").

As per independent claim 6 anticipates:

A method for executing database queries, the database comprising a first table (T1)

having a primary key (PK) column and a first correlated value column (CVI) and a

second table (T2) having a foreign key (FK) column related to the primary key column of

the first table and a second correlated value column (CV2) (column 7, lines 12-14 and

column 13, lines 35-40: primary and foreign key, tables SALES and ORDERRS

correspond to first table and second table; column 14, lines 19-20: distinct order-date

and shipment are the correlated value column 1 and correlated value column 2; 01 and

30 of the date is the constant values 1 and 2), comprising the steps of:

preparing a database query for execution based at least in part on application of a

derived constraint rule (DCR) having the following form:

(PK = FK) ...where C1 and C2 are constants(column 7, lines 12-14 and column 13,

lines 35-40: primary and foreign key, tables SALES and ORDERRS correspond to first

table and second table; column 14, lines 19-20: distinct order-date and shipment are the

correlated value column 1 and correlated value column 2; 01 and 30 of the date is the

constant values 1 and 2), and ... to produce an execution plan that includes one or

more DCR dependent steps (column 13, lines 20-25);

including update steps conditioned on changes in the DCR in the execution plan, the

update steps modifying the DCR dependent steps based at least in part on those

changes (column 4, lines 53-64, changes to columns or rows and query execution plan);

executing the plan(column 13, lines 23-26, query execution plan).

Claim 18 is rejected based on the same rationale as claim 6.

As per independent claim 19 anticipates:

 one or more nodes, a plurality of CPUs, each of the one or more nodes providing

access to one or more CPUs, a plurality of virtual processes, each of the one or more

CPUs providing access to one or more virtual processes, each virtual process

configured to manage data, including rows organized in tables, stored in one of a

plurality of data-storage facilities (Figure 3, and columns 15 to column 16, hardware

overview);

a first table (T1) having a primary key (PK) column and a first correlated value column

(CV1),a second table (T2) having a foreign key (FK) column related to the primary key

column of the first table and a second correlated value column (CV2), and

an optimizer configured to prepare a database query for execution based at least in part

on application of a derived constraint rule (DCR) having the following form:

(PK = FK) ...where C1 and C2 are constants (column 7, lines 12-14 and column 13,

lines 35-40: primary and foreign key, tables SALES and ORDERRS correspond to first

table and second table; column 14, lines 19-20: distinct order-date and shipment are the

correlated value column 1 and correlated value column 2; 01 and 30 of the date is the

constant values 1 and 2), and ... to produce an execution plan that includes one or

more DCR dependent steps(column 13, lines 23-26, query execution plan) and include

update steps conditioned on changes in the DCR in the execution plan, the update

steps modifying the DCR dependent steps based at least in part on those changes

(column 52, lines 52-65).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

Claims 1-5, 7-17,20-26 are rejected under 35 U.S.C. 103(a) as being

unpatentable over US Patent Number 6,957,225 issued to Mohamed Zait et al

("Zait") and US Patent Number 5,956,704 issued to Jyotin Gautam et al

("Gautam").

As per claim 1 Zait teaches:

A method for executing database queries (Abstract), the database comprising

a first table (T1) having a primary key (PK) column and a first correlated value column

(CV1) and a second table (T2) having a foreign key (FK) column related to the primary

key column of the first table and a second correlated value column (CV2) (column 7,

lines 12-14 and column 13, lines 35-40: primary and foreign key, tables SALES and

ORDERRS correspond to first table and second table; column 14, lines 19-20: distinct

order-date and shipment are the correlated value column 1 and correlated value column

2; 01 and 30 of the date is the constant values 1 and 2), comprising the steps of:

preparing a database query for execution based at least in part on application of a

derived constraint rule (DCR) having the following form: (PK = FK)...where C1 and C2

are constants, and ... (column 7, lines 12-14 and column 13, lines 35-40: primary and

foreign key, tables SALES and ORDERRS correspond to first table and second table;

column 14, lines 19-20: distinct order-date and shipment are the correlated value

column 1 and correlated value column 2; 01 and 30 of the date is the constant values 1

and 2) to produce an execution plan (column 13, lines 20-25);

executing the plan (column 13, lines 23-26, query execution plan).

Zait does not explicitly teach including abort steps .... Gautam does teach this

limitation (column 9, lines 63-65, abort) to enforce constraints (column 9, lines 58-61). It

would have been obvious to one of ordinary skill in the art at the time of the invention to

modify Zait with abort steps to enforce constraints (column 9, lines 58-61).

As per claim 2 same as claim arguments above and Gautam teaches:

 including lock acquisition steps in the execution plan prior to the abort steps (column6,

lines 20-25, locking tables).

As per claim 3 same as claim arguments above and Gautam teaches:

placing locks barring at least inserts and updates of T2 and updates of T1 from before

execution until after execution(column6, lines 20-25, locking tables).

As per claim 4 same as claim arguments above and Zait teaches:

step of determining that inserts and updates that result in modification of the DCR are

rare(column 52, lines 52-56).

As per claim 5 same as claim arguments above and Zait teaches:

determining that inserts and updates that result in modification of the DCR are rarely

concurrent with queries(column 52, lines 52-56).

As per claim 7 same as claim arguments above and Zait does not explicitly teach

including lock acquisition steps in the execution plan prior to the update steps. Gautam

does teach this limitation at (column6, lines 20-25, locking tables) to enforce constraints

(column 9, lines 58-61). It would have been obvious to one of ordinary skill in the art at

the time of the invention to modify Zait with lock acquisition steps to enforce constraints

(column 9, lines 58-61).

As per claim 8 same as claim arguments above and Zait does not explicitly teach

placing locks barring at least inserts and updates of T2 and updates of T1 from before

execution until after execution. Gautam does teach this limitation (column6, lines 20-25,

locking tables) to enforce constraints (column 9, lines 58-61). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Zait with placing locks barring at least inserts and updates ... to enforce constraints (column 9, lines 58-61).

As per claim 9 same as claim arguments above and Zait does not explicitly teach further comprising the step of including abort steps dependent on changes in the DCR and a DCR dependent step executing prior to an update step. Gautam does teach this limitation at (column 9, lines 63-65, abort) to enforce constraints (column 9, lines 58-61). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Zait including abort steps ... to enforce constraints (column 9, lines 58-61).

As per independent claim 10 Zait teaches:

A method for executing database queries, the database comprising a first table (T1) having a primary key (PK) column and a first correlated value column (CV1) and a second table (T2) having a foreign key (FK) column related to the primary key column of the first table and a second correlated value column (CV2) (column 7, lines 12-14 and column 13, lines 35-40: primary and foreign key, tables SALES and ORDERRS correspond to first table and second table; column 14, lines 19-20: distinct order-date

and shipment are the correlated value column 1 and correlated value column 2; 01 and

30 of the date is the constant values 1 and 2), comprising the steps of:

storing a derived constraint rule (DCR) having the following form: (PK = FK)...where CI

and C2 are constants...," in a database system dictionary(column 7, lines 12-14 and

column 13, lines 35-40: primary and foreign key, tables SALES and ORDERRS

correspond to first table and second table; column 14, lines 19-20: distinct order-date

and shipment are the correlated value column 1 and correlated value column 2; 01 and

30 of the date is the constant values 1 and 2);

and executing the plan(column 13, lines 23-26, query execution plan).

 Zait does not explicitly teach placing a read lock on the stored DCR and

after placing the read lock...Gautam does teach this limitation at (column6, lines 20-25,

locking tables) It would have been obvious to one of ordinary skill in the art at the time

of the invention to modify Zait with a read lock to enforce constraints (column 9, lines

58-61).

As per claim 11 same as claim arguments above and Zait teaches:

 further comprising the step of determining that inserts and updates

that result in modification of the DCR are frequent (column 52, lines 52-56).

As per claim 12 same as claim arguments above and Zait teaches:

 further comprising the step of determining that inserts and updates that result in

modification of the DCR are frequently concurrent with queries(column 52, lines 52-56).

Claims 13-17 are rejected based on the same rationale as claim 1-5.

As per independent claim 20 teaches:

A database system for executing database queries, comprising:

one or more nodes, a plurality of CPUs, each of the one or more nodes providing

access to one or more CPUs, a plurality of virtual processes, each of the one or more

CPUS providing access to one or more virtual processes, each virtual process

configured to manage data, including rows organized in tables, stored in one of a

plurality of data-storage facilities (Figure 3, column 15 to column 16, hardware

overview);

a first table (T1) having a primary key (PK) column and a first correlated value column

(CV1), a second table (T2) having a foreign key (FK) column related to the primary key

column of the first table and a second correlated value column (CV2), prepare a

database query for execution based at least in part on application of a derived

constraint rule (DCR) having the following form: (PK = FK) ->...where CI and C2 are

constants, and '->" means "implies" to produce an execution plan(column 7, lines 12-14

and column 13, lines 35-40: primary and foreign key, tables SALES and ORDERRS

correspond to first table and second table; column 14, lines 19-20: distinct order-date

and shipment are the correlated value column 1 and correlated value column 2; 01 and

30 of the date is the constant values 1 and 2) and (column 13, lines 23-26, query

execution plan).

Zait does not explicitly teach including abort steps .... Gautam does teach this

limitation (column 9, lines 63-65, abort) to enforce constraints (column 9, lines 58-61). It

would have been obvious to one of ordinary skill in the art at the time of the invention to

modify Zait with abort steps to enforce constraints (column 9, lines 58-61).

Claims 21-24 are rejected based on the same rationale as claims 2-5.

Claim 25 is rejected based on the same rationale as claim 10.

As per independent claim 26 Zait teaches:

one or more nodes, a plurality of CPUs, each of the one or more nodes providing

access to one or more CPUs, a plurality of virtual processes, each of the one or more

CPUS providing access to one or more virtual processes, each virtual process

configured to manage data, including rows organized in tables, stored in one of a

plurality of data-storage facilities (Figure 3, column 15 to column 16, hardware

overview);

first table (T1) having a primary key (PK) column and a first correlated value column

(CV1), a second table (T2) having a foreign key (FK) column related to the primary key

column of the first table and a second correlated value column (CV2), and an optimizer

configured to: store a derived constraint rule (DCR) having the following form:

(PK = FK) ...where C1 and C2 ... in a database system dictionary(column 7, lines 12-14

and column 13, lines 35-40: primary and foreign key, tables SALES and ORDERRS

correspond to first table and second table; column 14, lines 19-20: distinct order-date

and shipment are the correlated value column 1 and correlated value column 2; 01 and

30 of the date is the constant values 1 and 2);

execution plan (column 13, lines 23-26, query execution plan).

Zait does not explicitly teach placing a read lock on the stored DCR and

after placing the read lock...Gautam does teach this limitation at (column6, lines 20-25,

locking tables) It would have been obvious to one of ordinary skill in the art at the time

of the invention to modify Zait with a read lock to enforce constraints (column 9, lines

58-61).

Contact Information

5.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan Rayyan whose telephone number is (571) 272-1675. The examiner can normally be reached M-F: 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).
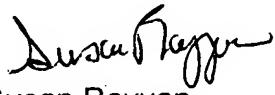
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July 24, 2006

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